Patent Claims

1. A soldering workpiece made from aluminum and/or aluminum compounds, having an oxide and/or hydroxide layer arranged at a surface of the soldering workpiece, characterized in that the thickness d of the oxide and/or hydroxide layer is greater than the thickness of a native oxide and/or hydroxide layer.

2. The soldering workpiece as claimed in claim 1, characterized in that 25 nm < d < 1000 nm, in particular 50 nm < d < 500 nm, in particular 80 nm < d < 250 nm.

3. The soldering workpiece as claimed in one of the preceding claims, characterized in that the oxide and/or hydroxide layer consists predominantly of boehmite.

4. The soldering workpiece as claimed in one of the preceding claims, characterized in that the oxide and/or hydroxide layer includes inhomogeneities, in particular notches, pores and/or cracks.

5. The soldering workpiece as claimed in one of the preceding claims, characterized in that the homogeneities are introduced into the oxide and/or hydroxide layer by chemical and/or thermal and/or mechanical treatment of the soldering workpiece.

6. The soldering workpiece as claimed in one of the preceding claims, characterized in that the soldering workpiece is provided with an in particular halogen-containing lubricant.

7. The soldering workpiece as claimed in one of the preceding claims, characterized in that the lubricant includes additives or constituents such as carboxylic

acids, amines, sulfur compounds and/or phosphorus compounds.

8. The soldering workpiece as claimed in one of the preceding claims, characterized in that the soldering workpiece has a solder layer comprising an aluminum compound.

9. The soldering workpiece as claimed in one of the preceding claims, characterized in that a base material of the soldering workpiece has a magnesium content of greater than 0.2%, in particular greater than 0.5%, preferably less than 2%.

10. A soldering process for joining at least two workpieces to one another, characterized in that at least one workpiece as described in one of the preceding claims is used.

11. A soldering process, in particular the soldering process as claimed in claim 10, with prior machining processes being carried out on at least one workpiece, in particular deep-drawing, cutting and/or punching, characterized in that an in particular halogen-containing lubricant is applied to the workpiece during the prior machining processes.

12. The soldering process as claimed in one of the preceding claims, characterized in that the lubricant includes additives or constituents such as carboxylic acids, amines, sulfur compounds and/or phosphorus compounds.

13. The soldering process as claimed in one of the preceding claims, characterized in that thermal degreasing and the soldering operation are carried out together, in particular during a single heating operation.

14. The soldering process as claimed in one of the preceding claims, characterized in that a shielding gas, in particular hydrogen, argon or nitrogen, is used for heating and/or soldering.

15. A heat exchanger, in particular for a motor vehicle, characterized in that the heat exchanger is at least partially soldered using the process as claimed in one of the preceding claims.